Title: UNDERFILL PROCESS FOR FLIP-CHIP DEVICE

### REMARKS

This responds to the Office Action mailed on August 9, 2006.

Applicant gratefully acknowledges the indication of allowability of several of the claims.

Claims 3, 17 and 18 are amended; as a result, claims 1, 3-5, 7, 8, 17-19, and 21-25 are now pending in this application.

### Objection to the Specification

The Office Action points out the use of "interstitial film". This terminology is correct, but in claim 17, the meaning of interstitial is different from all other occurrences thereof throughout the Detailed Description section. In one usage, "interstitial" means, e.g., the sections 136 and 236. But in the other usage, "interstitial" means a film disposed between the die 212 and the mold press 232. Following is from the Detailed Description section where the latter usage appears:

> Further, the fillet portion 316 fillet portion includes a surface roughness and pattern that is characteristic of the imprint that an interstitial film surface roughness and pattern leaves according to the embodiments set forth herein.

(Applicant's disclosure). Although the two usages can stand side-by-side in light of the Detailed Description section, Applicant has amended claims 17 and 18 to clarify claim meaning. Applicant respectfully thanks the Examiner for his careful reading of the disclosure.

## §102 Rejection of the Claims

Claims 17-19, 21 and 22 were rejected under 35 USC § 102(a) as being anticipated by AAPA. Applicant respectfully traverses this rejection and requests the Office to consider the following.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." (Verdegaal Bros. v.

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*Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), M.P.E.P. §2131, 8<sup>th</sup> Ed., Rev. 1).

The Final Office Action states that APA teaches at Figs. 2A-2B, "the fillet portion exhibits a symmetrical rectilinear footprint on the mounting substrate." (Office Action at page 3). Applicant respectfully disagrees. The text that supports Figs. 1A, 1B, 2A, and 2B, states

It is noted in Figure 1B that there is a tongue 25 of epoxy underfill material 18 on one side thereof. Accordingly, the fillet portion 22 and 23 that is depicted at profiles 20 and 21 in Figure 1A exhibits an *asymmetrical* footprint upon the mounting substrate 14 as depicted in Figure 1B.

(Applicant's disclosure. Emphasis added). The only other section that refers to the shape of a footprint, in Applicant's Detailed Description section, teaches

Unlike the prior art structures, it is noted that the fillet portion 316 is determined by the press mold an in most cases exhibits a *symmetrical* rectilinear footprint 318 on the mounting substrate 314.

(Applicant's disclosure. Emphasis added). This section is distinctly not "APA". Because all the claim limitations are not taught in the section characterized by the Office as APA, APA does not anticipate claim 17. Withdrawal of the rejections is respectfully requested.

Applicant notes that claims 18, 19\*e only other section that refers to the shape of a footprint, in Applicant's Detailed Description section, teaches

#### §103 Rejection of the Claims

Claim 21 was rejected under 35 USC § 103(a) as being unpatentable over APA.

Applicant respectfully traverses the rejection and requests the Office to consider the following.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success.

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Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (M.P.E.P. § 2143 8<sup>th</sup> Ed, Rev.4).

# Allowable Subject Matter

Claims 1, 3-5, 7, 8, and 23-25 were allowed.

## Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (801) 278-9171 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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